

WASHINGTON

SCIENCE TRENDS

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U.S. - Soviet Cooperation

Growing support is evident in Government technical circles for new joint ventures with the Soviets in a number of scientific fields including medicine, space research, atomics and abstracting services. Cancellation of at least one multi-million dollar U.S. project may be among the first actions considered.

- * Technical Information: A U.S. team, which visited various Soviet Bloc information centers recently, laid the groundwork for a science and engineering information agreement under which journals and abstracts of both nations would be more fully exchanged and certain indexing and abstracting costs could be shared.
- * Space Research: Russian scientists currently visiting U.S. space research centers reportedly expressed themselves in favor of increasing contacts and future joint ventures. The first step may be a U.S.-Soviet sounding rocket program for upper atmosphere research. It is rumored that Wernher Von Braun, of the Army Ballistic Missile Agency, received an informal invitation to visit Soviet space research centers early next year.
- * Atomics: During the past week Chairman John A. McCone of the U.S. Atomic Energy Commission, and Prof. V.S. Emelyanov, his Soviet counterpart, signed a Memorandum agreement for reciprocal exchanges in the field of peaceful uses of atomic energy. (Details, Page 2)

There is some possibility that this agreement may delay construction of a \$105 million linear accelerator, planned for Stanford University, Palo Alto, Calif. This major undertaking failed to win Congressional approval earlier this year, and consideration was delayed until next February at the earliest.

Emelyanov publicly suggested that "if we build a large installation of this sort together it can be done more quickly and more cheaply." He added that "furthermore, such an accelerator is so large and there are so few qualified scientists that it would be quite sufficient to meet the scientific needs of all to have one such large machine."

* Nuclear Agreement

Here are the highlights of the new agreement between the U.S. and the Soviets in the field of peaceful applications of atomic energy:

- * Exchange of Visits: Initially, visits will be limited to groups of three to five for periods of ten to fifteen days. However, the program will be gradually extended, if successful in the early stages.

First on the agenda is likely to be a Soviet visit to the thermo-nuclear research project at Princeton, N.J., with U.S. Scientists visiting the Soviet Institute of Atomic Energy. Short visits to other fusion power projects will also be included.

Then will come delegations of scientists specializing in nuclear power reactors, including breeder reactors; scientists specializing in high energy physics and delegations in the field of nuclear physics, neutron physics and the structure of the nucleus.

- * Exchange of Information: Agreement here calls for exchange of abstracts of unclassified work on peaceful applications -- including formal reports as well as informal and progress reports which are normally circulated only within the atomic energy programs of the two nations.

Upon request, either nation may obtain full-size copies of unclassified reports listed in the abstracts pertaining to research reactors and the power reactor field.

Also included, without specific arrangements, are information exchanges in radio-isotope production and processing development, techniques of application and high intensity sources.

- * Joint Enterprises: After individual study, officials of both nations will meet in mid-1960 to discuss the possibility of joint facilities and undertakings in controlled thermonuclear reactions; design and construction of an accelerator "of large and novel type;" approaches to waste disposal; nuclear data evaluation and compilation and development of nuclear standards.
- * Instruments: Both countries will consider the possibility of making new scientific instruments available, if permissible under the laws and export policies of either side.

Research Grants

Medical research grants and contracts will receive closer scrutiny under a new policy adopted by the U.S. Public Health Service -- a policy which will be closely watched by other Government agencies in technical fields. The change arises from President Eisenhower's concern over the rapid increase in medical research funds initiated by Congress in recent years.

(Details available. Single copies free. Write Information Office, U.S. Department of Health, Education and Welfare, Washington 25, D.C. for Announcement HEW-L83)

- () High Temperature Porcelain Electrode: A new porcelain-capsule reference electrode has been developed for the Atomic Energy Commission for the study of electrode potentials in molten salt systems. The device is said to eliminate many of the disadvantages of other electrodes and to remain stable at temperatures as high as 900°C. Its capsule construction prevents the salt inside from contaminating the melt under study. The porcelain was found to be highly conductive to sodium ions at relatively high temperatures.

(Report Available. Single Copies Free. Write National Bureau of Standards, Office of Technical Information, Washington 25, D.C. for Summary Technical Report - High Temperature Electrode)

- () Fuel Tank Linings: Navy researchers are looking into the possibility of using existent steel fuel-storage tanks to store jet fuels. A wide range of organic film-forming polymers has been evaluated as part of this program, and results indicate that carefully formulated urethane coatings are the best available linings. In addition, tests show that the service life of such coatings can be greatly extended by their application over flame-sprayed aluminum -- which also seals minor leaks.

(Report to be published in the near future as NRL 5384 by Chemistry Division, U.S. Naval Research Laboratory, Washington, 25, D.C.)

- () Silicone Cables: Tests at the New York Naval Shipyard have confirmed that the Navy's fire-resistant silicone cables can perform their control, lighting and power functions under the heavy quantities of salt water spray used to put out shipboard fires. Cables carrying up to 600 volts were tested, some with extruded silicone rubber insulation and others of silicone coated glass tape.

- () Computer Fire Hazards: Atomic Energy Commission inquiries have determined that reels of combustible tape have contributed to several severe fires in computer installations at Government facilities. Contractors are being warned that in some cases plastic components furnished the sole source for fuel, while wire insulation, the base material for printed circuits and the plastic often used for tape reel construction may also be hazardous.

(For details, write Safety and Fire Protection Branch, Office of Health and Safety, U.S. Atomic Energy Commission, Washington 25, D.C. Ask for Accident Bulletin 147)

- () New Landing Lights: Federal Aviation Agency will test a new system of domed pancake landing lights for application in airport runways, taxiways and high-speed turn-offs. The low profile lights protrude only 7/16 of an inch above the surface and are said to present no hazard to aircraft and will not interfere with snow removal. Units are cemented in place with a new type of epoxy resin. Wires are placed in inch-deep sawcuts in the pavement, and are then sealed in with a special joint sealing compound.

(Tests to be conducted at National Aviation Facilities Experimental Center, Federal Aviation Agency, Atlantic City, N.J.)

Publication Checklist

- () Stellar Atmospheres, a new bibliography dealing with the general subject of cosmical gas dynamics. Covers literature since the 1920's of interest to aerodynamicists and astrophysicists. \$1.25. (Write Office of Technical Services, Washington 25, D.C. for NBS Technical Note No. 30 -- Aerodynamic Phenomena in Stellar Atmospheres.)
- () Synthetic Fuels, a complete report on research and production of synthetic liquid fuels from coal, combining information formerly found in some 700 other publications. Detailed illustrations of equipment and processes that were developed in this program are included. 306 pages. \$1.50. (Write Superintendent of Documents, Government Printing Office, Washington 25, D.C. for Bureau of Mines Report of Investigations No. 5506)
- () Space Bibliography, a listing of recent books about jet propulsion, rockets and space exploration designed for use by educators. 7 pages. Single copies free. (Write Publications Inquiry Unit, U.S. Office of Education, Washington 25, D.C. for Pub. OE 33002).
- () Project Plowshare, a new listing of recent literature dealing with the peacetime uses of nuclear explosions. Contains 54 references to reports, articles and films. 5 pages. 50 cents. (Write OTS, U.S. Department of Commerce, Washington 25, D.C. for TID - 3522 (Rev. 2))
- () Self-Contained Diving, an historical review by the Committee on Undersea Warfare of the National Academy of Sciences with the emphasis on so-called SCUBA, self-contained underwater breathing apparatus. 50 pages. \$1.50. (Write Printing and Publishing Office, National Academy of Sciences, 2101 Constitution Avenue, Washington 25, D.C. for Publication 469)
- () Coal, a report analyzing the heating values and other properties of more than 9,400 samples of coal during the 1958 fiscal year. 40 cents. (Write Superintendent of Documents, Government Printing Office, Washington 25, D.C. for Report of Investigations 5489, U.S. Bureau of Mines)
- () Aircraft Arresting Gear, a 1958 report now available, on the U.S. Air Force program to develop and test arresting gear similar to that employed by the Navy for carrier operations. Discusses potential for emergency operation and for normal routine arrestment in the future. 22 pages. Single copies free. (Write NASA, CODE BID, 1520 H Street, N.W., Washington 25, D. C. for Publication N-67283x)
- () Nuclear Maritime Applications, an outstanding survey by the Stanford Research Institute for the Atomic Energy Commission on potential applications of nuclear energy in a marine environment. Covers such subjects as fishing and processing, unusual ocean cargo carriers, off shore oil and gas operations, marine mining and dredging and extraction of food materials. Nine chapters. \$3.50. (Write OTS, U.S. Department of Commerce, Washington 25, D.C. for Pub. SRIA-7)

